# Maximilian Huber

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## Education

**Northeastern University** — Boston, MA

*B.S. in Computer Science, Concentration in Artificial Intelligence* · ***GPA: 3.72/4.00*** — *Sep. 2020 – Aug. 2024*

*M.S. in Artificial Intelligence* — *Sep. 2024 – Present*

- **Relevant Coursework:** Object-Oriented Design · Algorithms and Data · Machine Learning (I and II) · Software Engineering (Graduate) · Artificial Intelligence (Graduate) · Natural Language Processing · Theory of Computation
- **University Honors Distinction:** Awarded to Northeastern University students who have completed six Honors courses or approved experiential learning experiences and maintained a cumulative 3.500 GPA.

## Skills

**Programming:** Python, Java, JavaScript, DLang, HTML/CSS, SQL, React/React Native

**Libraries/APIs:** TensorFlow, PyTorch, OpenAI, Langchain, LlamaIndex, OpenCV, NLTK

**Software:** GitHub, Conda, WSL 2 (Linux), Vim, Redis, GCS(BigQuery, Firebase), Apache Airflow, Metabase

**Languages:** English (Native), German (Native)

## Work Experience

**CollX** — Haddonfield, NJ, United States

*Full Stack Engineer [Co-op]* — *Mar. 2023 – Dec. 2023*

- Designed and implemented CollX AI, a user-facing, domain-specific RAG chatbot, with LlamaIndex and OpenAI API.
- Queried SQL data tables to create a KPI dashboard which was used to predict and monitor app growth and marketplace activity in Metabase.
- Created and scheduled Airflow jobs for data-processing and web-scraping to improve visual search accuracy and generate AI knowledge indexes.
- Worked in Docker containers and remote servers via SSH, WSL 2, and Vim.

## Research Experience

**University of Perugia, Business & Collective Intelligence Lab** — Perugia, Italy

*Machine Learning Research Assistant [Co-op]* — *Sep. 2022 – Dec. 2022*

- Created educational videos explaining the various data analysis/NLP functions of the Semantic Brand Score Business Intelligence web app for English-speaking professors, researchers, and Ph.D. students.
- Researched and implemented LDA, SBM, and Correspondence Analysis topic models for a comparative analysis project in Python.

## Projects

**DeepSquid (Grad AI Final Group Project)** | *Web app + RNN for deepfake video detection*

- Researched, implemented, and trained a video classification RNN model using TensorFlow and OpenCV. Model reached 100% val accuracy during training, outperformed example models.
- Designed and implemented a simple web demo using Vercel and Gradio which allows anyone to try the model on any input YouTube URL.

**Chunk Splitting Problem (NLP Final Project)** | *Experimental approach to indexing a text corpus for RAG*

- Designed, implemented, and tested a novel text corpus indexing method using a PyTorch neural network.
- Created a framework for implementing and comparing different indexing methods in terms of embedding cost, time taken, and quality of retrieval results.

**MindReader Quantum (MIT iQuHack Group Project)** | *Mobile app + Hybrid CNN for diagnosing dementia severity from MRI's*

- Designed and coded an elegant, practical front-end with React Native and JavaScript.
- Researched, implemented, and trained a Classical/Quantum hybrid CNN model using PyTorch and Pennylane.
- Connected the front-end and back-end with a REST API using Flask and Python.